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Section 18

INDUSTRIAL WATER USE

18.1 INTRODUCTION

For this report, industrial water use is defined as water used in manufacturing of steel, chemicals, paper, and many other products. It includes processing, washing, and cooling operations, as well as employee use. In the Bear River Basin, meat packing, dairies, cheese, egg plants, and other food processing enterprises are included. Also included, to the extent they can be identified, are such activities as gravel washing and ready-mix concrete.

Total industrial use in the basin is relatively small, compared to more heavily populated counties along the Wasatch Front, i.e., Weber, Davis, and Salt Lake. About 80 percent of 1990 industrial use is self-supplied. The other 20 percent is from public supply systems. It is estimated and subtracted out from total public supply use in order to discuss industrial use separately. Almost all of the basin's industrial use is from groundwater.

No single agency or entity regulates the development or use of industrial water, although its use must conform to existing state laws for water rights, pollution control, and other regulations.

18.2 PRESENT USE

Table 18-1 shows a breakdown of estimated industrial uses in 1990, with a total of 10,310 acre-feet/year. The largest component is 7,400 acre-feet of self-supplied

use in Cache County. This consists mostly of groundwater used for fish culture at two or more locations: Logan (Division of Wildlife Resources fish hatchery), Smithfield (commercial enterprise), and Providence (commercial). Another commercial fish operation near Paradise uses mostly surface water. The next largest portion is 2,451 acre-feet of industrial uses from public supplies. These uses include a major meat packing operation in Hyrum, a large cheese plant in Amalga, a dairy products plant in Wellsville, and several enterprises in Logan and North Logan (most of which are dairy or food processors). About half of the self-applied use in Box Elder County is at a large steel plant operation near Plymouth. Self-supplied use at Thiokol's aerospace operation near Howell is not included in Table 18-1,



NUCOR Plant Near Plymouth - NUCOR

TABLE 18-1
ESTIMATED INDUSTRIAL WATER USE IN THE BEAR RIVER BASIN

| Estimated 1990 Diversions/Withdrawals ⁴ (AF/Year) | | | | |
|--|---------------|--------------------------|--------------|--|
| County and Community | Public Supply | Self-Supplied | Total | Estimated 1990 Depletions (AF/Year) ^a |
| Box Elder | | | | |
| Perry | 26 | | | |
| Tremonton | <u>92</u> | | | |
| Total | 118 | <u>900^b</u> | <u>1,020</u> | <u>250</u> |
| Cache | | | | |
| Almaga | 267 | | | |
| Cornish | 43 | | | |
| Nibley | 2 | | | |
| Hyrum | 1,128 | | | |
| Wellsville | 92 | | | |
| Logan | 272 | | | |
| N. Logan | <u>65</u> | | | |
| Total | 1,869 | <u>7,400^b</u> | <u>9,270</u> | <u>2,320</u> |
| Rich | | | | |
| Laketown | 20 | 0 | 20 | 10 |
| Summit | <u>0</u> | <u>0</u> | <u>0</u> | <u>0</u> |
| Basin Total | 2,007 | 8,300 | 10,310 | 2,580 |

^aEstimated to be about 25 percent of diversions/withdrawals.

^bAt several locations.

because the operation and its industrial water supply lie outside the basin's hydrologic boundary. In Rich County, a meat packing plant in Laketown is the only significant industrial use.

Hydropower operations on the Bear River are extensive and long-standing. Utah Power and Light Company operates three hydropower dams and seven generating plants with a combined capacity of 117 megawatts, using Bear Lake for storage. Another seven megawatts of hydropower are generated at

eight other power plants owned by cities and private entities. Although a non-consumptive industrial use, hydropower generation has altered natural flow patterns, with the main effect being in regulation and coordination of river flows.

18.3 PROBLEMS, ISSUES, AND FUTURE USE

At present, the most important issue with regards to industrial water use in the Bear River Basin is the coordination in water

resource planning, waste treatment, and future industrial development. Industrial development could require moderate amounts of additional water. Both Cache and Box Elder counties are attempting to attract new industries for the improvement of employment and other economic benefits.

In contrast to residential and commercial water uses, which grow somewhat uniformly with population, future industrial use is impossible to predict. But that occurrence is not unlikely, and it could happen quickly.

Various amounts of future industrial use ranging from moderate to large have been estimated or recommended by consultants, water districts, and others. But at this time, none can be fully supported by factual, reliable information. One long-range projection by Box Elder County was in the range of 20,000 acre-feet/year. If industrial water use grows at the same rate as the population in the next 20 years, it will increase from 10,310 acre-feet to 13,460 acre-feet, as shown below.

Water quality of the existing supply for certain industries in Box Elder County is a

| | 1990 (acre-feet) | 2010 (acre-feet) |
|---------------|---------------------|---------------------|
| Rich Co. | 20 | 30 |
| Box Elder Co. | 1,020 | 1,290 |
| Cache Co. | <u>9,270</u> | <u>12,140</u> |
| Total | 10,310 | 13,460 |

major concern. The TDS (total dissolved solids) values in the water at one particular industrial site in Box Elder County have been measured at 1,525 mg/l, requiring considerable treatment to reduce the level to a usable level. Other industries have also experienced water quality degradation in some sources, making the water unusable without extensive treatment.

18.4 RECOMMENDATIONS

The Bear River Association of Governments and appropriate local municipalities should develop and update inventories concerning present industrial water uses. Responsible local agencies should continue to estimate future industrial growth and make plans to supply needed water.

The Bear River Association of Governments should take the lead in evaluating the industrial water quality degradation in Box Elder County, and look for means of improvement.

18.5 REFERENCES

In addition to the references listed below, Section 18 of the Utah State Water Plan, January 1990, discusses six issues relating to industrial water use.

1. "Bear River Water Development Study," Hansen, Allen, and Luce, Inc., Consultant Engineers, and Valley Engineering Inc., February 1989.
2. "Overview of the Proposed Bear River Water Development Plan," Division of Water Resources, December 1988, Revised September 1989.
3. Wasatch Front Total Water Management Study, Utah Division of Water Resources and U.S. Bureau of Reclamation, February 1990.
4. "Present Water Supplies, Uses, and Rights," Bear River and Wasatch Front, Hansen, Allen, and Luce, Utah Division of Water Resources, June 1991.